



Global Hydrology Resource Center

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Mission Statement

To serve as NASA's Earth science data stewards for scientific, educational, commercial and governmental communities, with a focus on data for the global hydrologic cycle

Hydrologic Cycle • Severe Weather Interactions
Lightning • Atmospheric Convection

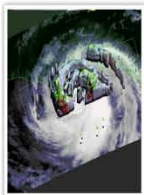
To provide knowledge augmentation services encompassing tools, infrastructure, user support, and expertise to our stakeholders



WHAT WE SERVE

Lightning Data

- Responsible for the ingest, archive, product generation, reprocessing and distribution of data from the TRMM Lightning Imaging Sensor, plus ancillary lightning data sets utilized by the US science team, since January 1998. A second LIS instrument will fly on the SpaceX rocket to the International Space Station in February 2016.



Internal structure of Hurricane Isaac depicting precipitation intensity and lightning from LIS
Photo courtesy of Owen Kelley

Ancillary data -

- National Lightning Detection Network, electric field mill data from the Kennedy Space Center, global infrared data and ground based radar data.
- Precursor satellite instruments -
 - Optical Transient Detector in operation on Microsat-1 from 1995 to 2000.
 - Operational Linescan Sensor on Defense Meteorological satellites from 1973 to 1995.

GHRC is recognized as the National Lightning Archive.

Microwave Data

Microwave Dataset Holdings at GHRC



- GHRC and its predecessor programs have been ingesting, processing, archiving and distributing microwave data for over 35 years.
- MSU, AMSU, SSM/I, SSMIS, TMI (satellite); AMPR, HRAD (airborne)
- This climate sensitive data record extends back to 1979 providing an unbroken inventory of climate information that continues today.

GHRC is also recognized as one of the primary data centers for microwave data.



Field Campaigns

Hurricane Science

Data from successive field campaigns since 1990 are tied together through common procedures, consistent metadata, and discovery and archival systems making it easy to access data from instruments that have been employed across several missions.



GHRC is recognized as one of the main data centers for Hurricane Science data.

Global Precipitation Measurement Mission (GPM) Ground Validation (GV)

Ground and airborne precipitation datasets supporting physical validation of satellite-based precipitation retrieval algorithms.

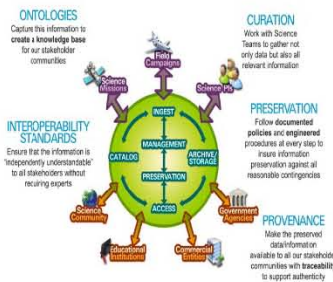
Hurricane and Severe Storm Sentinel (HS3)

Five-year mission specifically targeted to investigate the processes that underlie hurricane intensity change in the Atlantic Ocean basin, utilizing two unmanned Global Hawks.

GHRC is set up to manage a large number of episodic, heterogeneous datasets and can handle the "long tail" of science data.

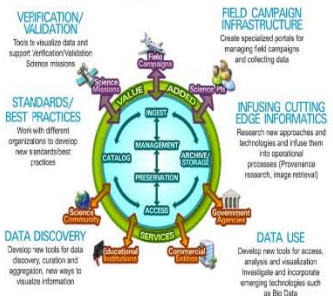
WHAT WE DO

Data Stewardship



Serve as NASA's Earth science data stewards for scientific, educational, commercial and governmental communities, with a focus on data for the global hydrologic cycle.

Knowledge Augmentation Services



Provide knowledge augmentation services encompassing tools, infrastructure, user support, and expertise to our stakeholders.

COMING SOON

New tools and technologies at GHRC

New Website

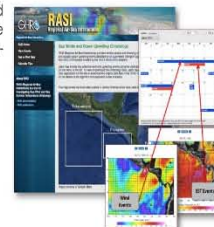
The new GHRC web site, currently being built, provides the user many options to get data right away

- Search box at top of page
- Navigation on home page clarifies user choices and emphasizes GHRC is concerned primarily with data
- Top navigation menu supplemented with additional "quick links" to popular destinations in the form of news-related slides and additional buttons



RASI

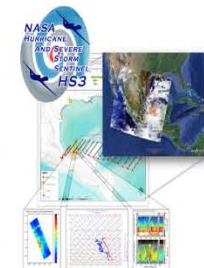
The Regional Air-Sea Interactions (RASI) tool allows users to explore a climatology of mountain gap winds over the ocean that can cause Coastal upwelling when warm surface water is pushed away from the coast by wind the jet, and deep cold water and nutrients rise to the surface.
<http://ghrc.nsstc.nasa.gov/rasi>



HS3

The planned HS3 Information System for data from the Hurricane and Severe Storm Sentinel mission will provide a visual, map-based data interface to support:

- Data selection by aircraft flight track or storm track
- Data visualization with image overlays or insets
- Timeline plots showing storm characteristics and availability of aircraft observations



Data Albums

Data Albums automate the tedious and time-consuming process of gathering relevant data and information from a wide variety of distributed resources for case studies, climatology analyses, and end users.



Data Impact beyond Science Teams

- New science areas
- Science applications
- Ancillary data used in many, many publications
- Data used to address specific regional needs all over the world



Data Publication and Citation

- Data Publication at GHRC
 - Data are ingested, cataloged and archived using standards based engineering processes
 - Accessible via NASA data systems
 - Also indexed by Google and other search engines
- Data Citation and DOIs
 - Publication credit for the data producer
 - Traceability for where and how data are used
 - Data DOI in a citation provides a link from the scientific article to dataset information and download page



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